Attachment P
Issue Paper:
False Negatives with New AYP Definition

This issue paper builds on the work in an earlier paper, "The Chances of False Negatives: Failing AYP because of Random Processes," by including single subject false negative results based on the theoretical binomial distribution.

Focusing on schools between the 20th and 50th percentiles, the probability of failing AYP using a Monte Carlo approach (2000 trials in each cell) was simulated. Single subject results can also be obtained without simulation, by looking directly at the binomial distribution. As in the earlier work, a simplifying assumption was made that all students at a school have a probability of scoring proficient equal to their school's proficiency rate. The results are summarized in the following table:

Single Group False Negative Rates, using 2003 AYP Targets
Single Subject, with Various Sample Sizes and True Scores*

		"True Score" Probabilities (20th, 30th, 40th, 50th %iles)			
	ELA	**0.136**	**0.181**	**0.226**	**0.282**
Sample Size	**30**	0.61	0.35	0.16	0.05
	50	0.47	0.18	0.05	0.01
	100	0.50	0.11	0.01	0.00
	200	0.53	0.05	0.00	0.00

		"True Score" Probabilities (20th, 30th, 40th, 50th %iles)			
	Math	**0.160**	**0.208**	**0.253**	**0.303**
Sample Size	**30**	0.46	0.22	0.09	0.03
	50	0.44	0.26	0.08	0.02
	100	0.46	0.14	0.02	0.00
	200	0.47	0.05	0.00	0.00

* True Score Probabilities are quantiles from the statewide distribution of the 2002 CA Standards Tests. The values shown correspond to the NCLB starting point, the next two deciles, and the median. One feature of these values is that ten percent of the schools in the state have proficiency rates between any pair of adjacent values.

These results show that by increasing the subgroup size the rate of false negatives can be cut, in most cases dramatically. The false negative rate is high, around 50%, for any school near the AYP target. All of these results apply to a single group: as has been discussed, the problem of false negatives is compounded because of multiple groups and the cumulative nature of AYP decisions.